DFCM

Division of Facilities
Construction & Management
Second Quarter 2014

Photo: Rocio Briceño

2014 LEGISLATIVE UPDATE:

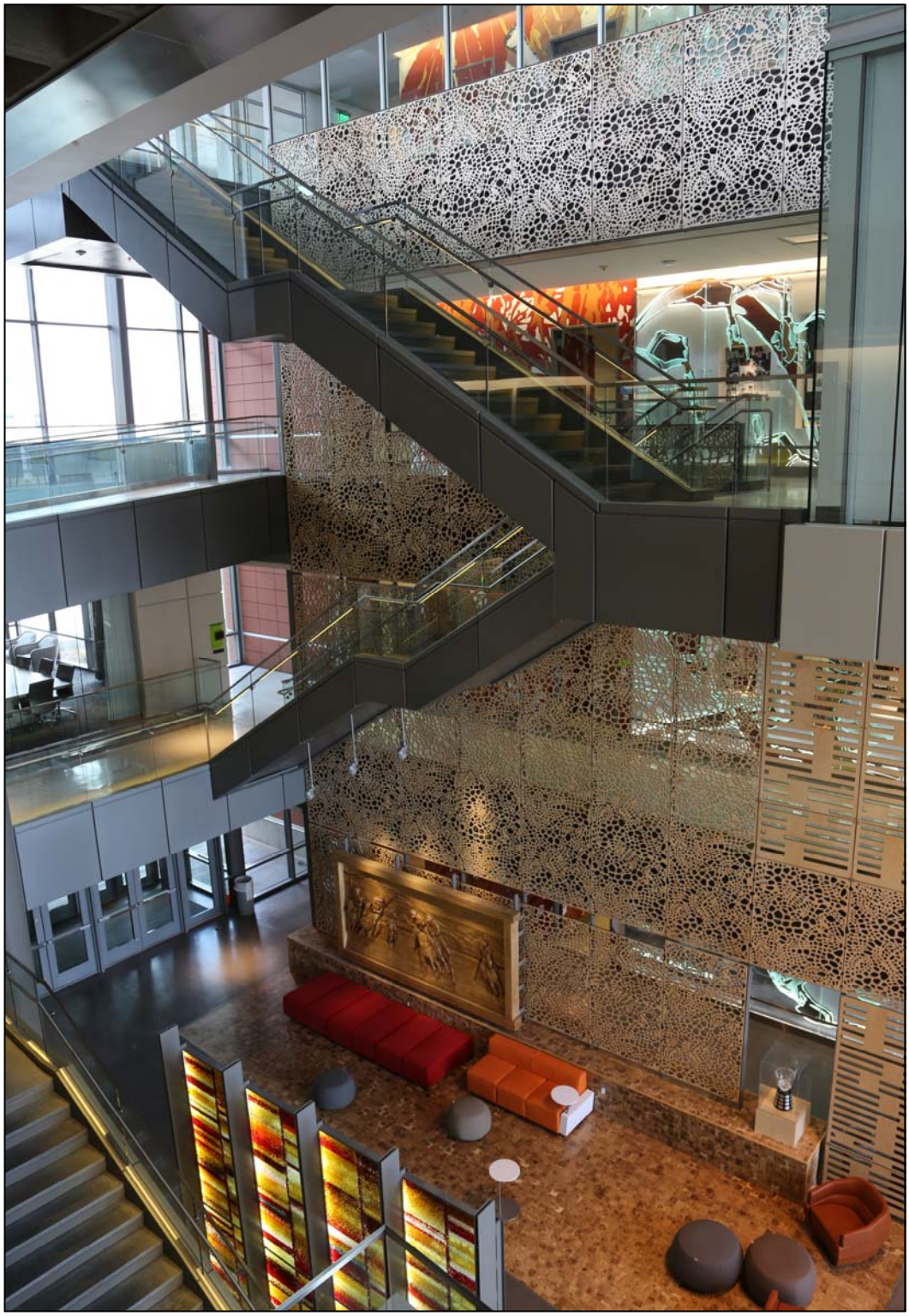
A BANNER FUNDING YEAR!!

This was a great year for DFCM and our partners as the Legislature funded the full 1.1% of current replacement value (CRV) ($100,243,600) for Capital Improvements. A lot of work went into making this happen. A thumbs up to Governor Gary Herbert, the Board of Regents, the Utah State Building Board, and the Infrastructure & General Government Subcommittee for recognizing the deferred maintenance needs of the state and helping DFCM preserve and protect Utah's assets. That amounts to 322 improvement projects at an average project cost of around $200,000. We all have our work cut out for us this year!!! The Capital Improvements Projects list can be found at: http://www.dfcm.utah.gov/UtSBldgBoard/fiveyrprogram/fy2015_5yrplan.pdf

Nine Capital Development Projects were funded totaling over $160,000,000. The Legislature followed the Building Board's recommendations and funded the top nine projects prioritized by the Board. The development projects are as follows:

- **South West Applied Technology College: $ 19,300,000**
- **Huntsman Primary Children's and Families: $ 8,000,000 + $92,000,000*** **(*Hunstman Donation)**
- **Weber State Science Lab Building: $ 57,400,000**
- **USU Eastern: $ 19,000,000**
- **USU Brigham City: $ 7,500,000**
- **DHS Developmental Durable Housing: $ 6,500,000**
- **Gunnison Prison Expansion: $ 36,000,000**
- **National Guard: $ 3,900,000**
- **Utah School for the Deaf and Blind: $ 1,500,000**

DFCM was also authorized to proceed with multiple Non-State funded projects. Of note are: SUU Center for the Arts ($35,000,000), University of Utah Infrastructure ($57,000,000), Lassonde Entrepreneur Center ($48,000,000), Alumni Housing (10,000,000), and Mountainland Applied Technology College Trades Building ($10,683,000).
In total, including donated funds, DFCM will be awarding over $550,000,000 in construction this year! ***- Josh Haines, Director, DFCM***



University of Utah L.S. Skaggs Pharmacy Research Institute (Salt Lake City). Slated for LEED-Gold certification, this award-winning new building on the University of Utah campus is a five-story building of research labs, conference rooms, and underground parking. The four-story atrium, which provides café and small lounge areas for faculty and students, serves as the building entry and connects the new institute with L.S. Skaggs Sr. Hall. *(Photo: Rocío Briceño)*

LEED

Leadership in Energy and Environmental Design (LEED) is a set of rating systems for the design, construction, operation, and maintenance of green buildings, homes and neighborhoods. Developed by the U.S. Green Building Council (USGBC), the program recognizes best-in-class building strategies and practices.
To receive LEED certification, building projects satisfy prerequisites and earn points to achieve different levels of certification. The number of points a project earns determines the level of LEED certification that the project will receive: Platinum (80+ points), Gold (60-79 points), Silver (50-59 points), Certified (40-49 points).

For more information: ***http://www.usgbc.org/LEED/***

Reducing the Cost of State Government for Taxpayers!

Serving Utah's Citizens' Needs

DFCM's State Building Energy Efficiency Program **(SBEEP)** works to increase energy efficiency in both new & existing state buildings.

This past year SBEEP saved the state millions in energy costs, secured $700,000 in utility incentives/dedicated credits and secured $8.3 million in Solar Photo Voltaic grants for projects in the state.

100% of the administrative costs for SBEEP are paid with utility incentives/dedicated credits. NO state appropriated funds are needed!

SBEEP has established robust High Performance Building Standards and all newly constructed buildings in the state achieve a minimum LEED Silver rating, which ensures optimum energy efficiency throughout the life of the buildings.

Innovative funding strategies are used to fund energy projects including: Grants, State Facility Energy Efficiency Revolving Loan Fund, Public/Private partnerships including Performance Contracting with ESCO's with municipal leases and Power Purchase Agreements for solar projects.
SBEEP reduces the cost of state government for taxpayers!
- John Harrington,
DFCM Energy Director

Small Investment, Big Payback!

Utah: A National Leader

Under the direction of the Division of Facilities Construction and Management, the State Building Energy Efficiency Program's (SBEEP) primary goal is to improve energy efficiency and reduce energy costs for State facilities. The program finds the most effective methods to reduce operating costs, lower maintenance costs and extend the life of building equipment through efficiency measures.

Building Envelope Innovation

DFCM has introduced an innovative approach to building envelope design on all new buildings to be a national leader in envelope performance. The efficiency achieved by this innovation allows DFCM to downsize the mechanical systems in the building and significantly reduce ongoing utility costs and associated emissions. An example of such a building is the new Holland Centennial Commons Building (Dixie State University, 2012). It is so efficient it exceeds code baselines by 33%. This, and many others since then, are some of the "tightest" buildings ever tested.

Design Team: VCBO Architecture and Sasaki Associates.
General Contractor: Jacobsen Construction.

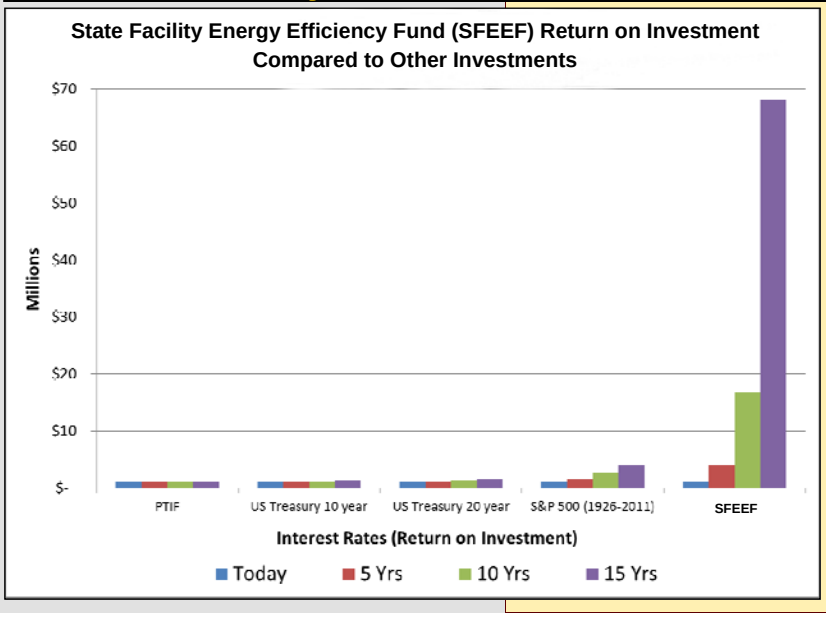
Rocío Briceño

Top 10 Highlights:
What SBEEP is doing on a daily basis

1. Develop, acquire funding and implement cost effective retrofits to optimize energy efficiency in existing buildings and reduce energy costs.
2. Ensure that all newly constructed state buildings are energy efficient and built to DFCM's High Performance Energy Design Standards including LEED Silver requirements.
3. Develop, acquire funding and implement cost effective renewable energy projects, leveraged with grants and creative funding models such as Power Purchase Agreements.
4. Ensure that all new targeted Capital Improvement projects are energy efficient to capitalize on projects that have an energy efficiency payback.
5. Secure utility incentives on all applicable DFCM projects.
6. Acquire creative alternative funding sources for energy projects, thereby reducing or eliminating the need for general state funds. ESCO's, grants, utility incentives, revolving loan funds, power purchase agreements, third party financing & donor funds.
7. Revolving Loan Fund -Working with agencies and higher education to fully subscribe the State Facilities Energy Efficiency Fund to cover the cost of energy efficiency projects with a payback of six years or less. Managing these projects to ensure they are completed in a time frame that allows the customer to see maximum benefit from the project.
8. Ensure that DFCM's energy design standards are state of the art including envelope standards, mechanical EE ratings, lighting systems, control systems and the commissioning process.
9. Continue to promote the importance of Energy Efficiency in state buildings in both agency and higher education institutions. Work with and develop relationships with other state entities, stake holders, national groups and associations to keep current on new ideas, new technology, funding opportunities and best practices in order to keep state energy policies and practices current and robust. These relationships foster cooperation and partnerships that are very valuable.
10. Continue to be a trusted resource for energy related inquiries and questions from entities throughout the state including: State Agencies, Higher Education, Municipal and County entities, School Districts, Energy Companies, Energy Product vendors, Private Owners, etc.

- John Harrington, DFCM Energy Director

Efficiency In Construction for Development and Improvement



Since 2006 SBEEP has developed and implemented hundreds of energy retrofits; exceeding **$11 Million in energy avoided cost savings** to the state. From new buildings to retrofit work, the SBEEP works with project managers at DFCM and all agencies and institutions to ensure that the most efficient and cost effective decisions are being made for all buildings through the state.

High Performance Building Standards are continuously being evaluated to ensure they provide the best value to the State through new buildings that provide long lasting and efficient spaces throughout the life of a building.

Team Approach Over Life Cycle Produces Results!

Over the last several years DFCM has been designing high performance buildings. We continue to develop and refine our process to ensure that not only are buildings designed to perform at high levels, but actually perform for years at those levels. Collaboration and integration of the design team, occupants and facilities managers help to ensure that Utah realizes the benefit of the effort for decades of operation. The Ogden Juvenile Courts Building *(below)* is a great example of collaboration and integration.

VCBO Architects

DFCM Facilities Coordinator Rick Nauta, DFCM Building Automated Systems (BMS) Specialists Kevin Healy and John Horton, the design team of VCBO Architects, Colvin Engineering, and Spectrum Engineering worked together to design a building that is anticipated to perform at 30% energy cost savings. The value should be realized in that the Facilities Managers know the design and understand how the building is to operate in order to realize or exceed the anticipated energy cost savings. Combine this with extensive commissioning, the building should have years of efficient and successful operation for the state of Utah.

Project Highlights

- Comprehensive Building Envelope Commissioning to ensure a .1 cfm per square foot leakage rate.
- Comprehensive Building Systems Commissioning to ensure correct installation and operation.
- Comprehensive design review of building controls systems by Engineers, Facilities Managers and Commissioning Agents.
- 38% window to wall ratio, lowers first costs and keeps annual energy costs in check
- 30% Energy Cost Savings
- Life Cycle Cost Analysis determined that the overall insulation thickness in the walls could be REDUCED by 1" because the savings generated would never pay back the initial costs. Those funds were directed towards other energy efficiency strategies that yielded a greater value to the project.

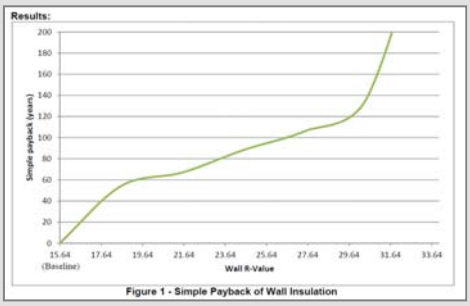
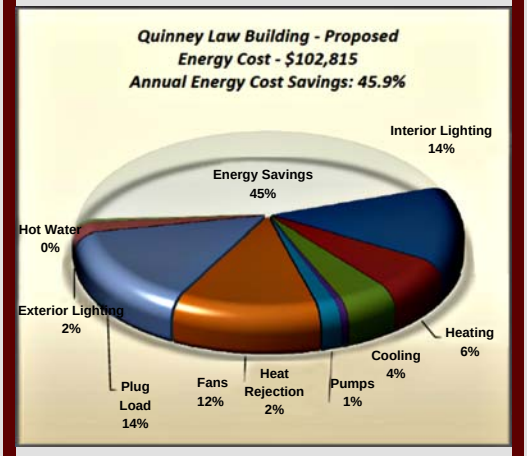


Figure 1 - Simple Payback of Wall Insulation

Energy Engineering

Every dollar spent on an energy engineer to assist the design team will yield $10 in savings over the life of the building. DFCM requires each project to integrate an energy engineer into the design of each building. The state realizes lower construction costs in smaller HVAC systems, and energy cost savings every year thereafter. These funds can either be used for additional energy efficient systems, square footage or other building needs.

Sample Energy Modeling Analysis



The energy engineering and modeling process also helps determine where funds can be leveraged most effectively yielding savings to the projects and annual budgets each year. These efforts are recognized by utility companies who then provide financial incentives back to the state. Last year incentives made to buildings exceeded $400,000 for large development projects and $400,000 for small improvement projects.

- $260,000 Utility incentives from Capital Development Projects
- $160,000 Utility incentives from Improvement Projects

Building Envelope Commissioning

Over the years DFCM has learned the immense value of having high performing building envelopes. Quality systems that perform as designed provide value to the building and its occupants for decades. Unlike mechanical systems that generally have an expected life of 10 to 20 years, the components of the building envelope generally last the entire life of the building. DFCM has one, if not the, most rigorous envelope programs in the nation to ensure the skin of the building is designed and installed with long term performance in mind. Extensive design assistance, inspections, and testing ensure value to the state for decades.

In an effort to quantify the value of this program, DFCM conducted an analysis utilizing a sophisticated energy modeling process to determine annual energy cost savings ranging from 4% to 32%, with a majority of buildings experiencing savings in the 10% to 15% range.

- John Burningham,
Energy Development Director

Architectural Testing Inc.

15 Solar Photovoltaic Projects To Be Installed In The State Using 100% Grant Funds!

DFCM's **SBEEP** is currently in the process of developing and installing Solar Photovoltaic projects at various locations in the state, all paid with Army and Rocky Mountain Power utility grants.

At several sites, a Power Purchase Agreement (PPA) will also be implemented, which is a funding vehicle that enables a larger initial installation and provides a hedge against raising utility rates for 20 years.

Average annual savings of over $770,000 are expected to be generated by 4.6 megawatts with a 25-year cost savings exceeding $19 million. From a consumer standpoint, each year 637 homes could be powered and up to 1,100 vehicles could potentially be taken off the road.

The projects will reduce the need for energy from fossil fuels thereby improving air quality and reductions in utility costs. *SBEEP works to improve air quality and reduce the cost of state government!*

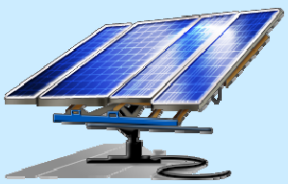
PROJECT BREAKDOWN:

- Grants secured: $8.7 million
- Total Size of Projects: 4.6 Megawatts

There are 17 Solar PV projects either in development or construction. Fifteen of the 17 projects are funded by Army and Rocky Mountain Power grants:

- 10 with the Utah National Guard at various locations in the state
- 2 at the University of Utah
- 1 at Salt Lake Community College
- 1 - Olympic Legacy Foundation - Kearns Oval
- 1 - DNR Vernal History Museum

- John Harrington, DFCM Energy Director



Highlights of the energy projects DFCM has managed:

NEW CAPITOL PLANT COLD WATER EXCHANGER:

Projected Annual Savings: $42,000

In 2013, DFCM managed a project where a new cold water exchanger *(photo below)* was installed so the Capitol Hill buildings' cold water could use the outside air to assist in the cooling for the buildings instead of using the large electric usage chillers.

The use of the exchanger will result in lowering the Capitol Hill's electric bills up to $42,000 a year as DFCM continues to fine-tune the strategies of the equipment to yield even greater savings .

Rocio Briceño

LIGHTING STRATEGIES:

80% Decrease in Energy Used at No Expense to Tenant Comfort

Lighting constitutes around 35% of the average utility usage for buildings. For the past few years, DFCM has been implementing new lighting fixtures and lamps in the effort to reduce the energy used by lighting. Starting in 2013, the newest development in lighting retrofit strategies has been able to produce a 80+% decrease in the energy used for lighting buildings. This drastic drop in energy use in no way stops building tenant comfort, maintenance, or has an increase in the cost of the project.

DFCM will research the impact on "sweeping" systems that will further increase our energy savings by installing lighting systems that will routinely "sweep" through the building and shut off non-essential lighting systems during the after-work schedule and weekends. ***- Chris Atkins, ISF Energy Manager***

Veterans Nursing Home PASS Stringent VA Test on 1st Attempt!

DFCM Constructs Award Winning Veterans Nursing Home in Ivins, UT and will save $600,000 in energy costs over the next 10 years

The newly constructed Southern Utah Veterans Home in Ivins, is only the second home to successfully complete all aspects of the rigid and comprehensive Veterans Administration Recognition Survey on its first try - rendering the facility certified and officially recognized as a participating Veterans Home in the VA State Home Program. Prior to passing the survey, no payment for health care services could be made by the VA.

The 108-private room facility was awarded the Engineering News-Record 2013 Award of Merit for Best Intermountain Health Care Project. It uses a new community style design - where rooms are grouped into 12 room communities that include a living area, dining area, den, patio, yard and garden.

DFCM used a refined design/build process to bring the project in on budget and on time - at the same time saving our veterans an estimated $600,000 over the next 10 years in utility costs. Several obstacles, including funding and scheduling issues, were overcome by using the right delivery (procurement) method for this project.

Funding issues:

The funding for this project came from a combination of a Federal Grant and State Funds. The funding split was two thirds federal and one third state. The project was initially under funded by 1.8 million dollars. To make the problem worse, there were federal requirements that still had to be met as to the number of private rooms, amenities and many other strict federal guidelines. Solutions to the budget issues were found through collaboration with the design/build team of Naylor Wentworth Lund Architects and Layton Construction.

The budget reduction and energy savings came largely through the determination to use a Variable Refrigerant Volume (VRV) mechanical system. Due to the energy savings associated with the use of this system, the project also received an $100,000 incentive from Rocky Mountain power on top of the projected energy savings.

Schedule:

From the time the design/build team was awarded a contract they had only four months to have plans submitted and approved by the Federal VA Architect team. Because the selected team advanced the plans and specifications above the normal schematic level during contractor selection, they were able to meet the near impossible time frame. The project also was constructed two months ahead of schedule.

Pass Federal VA Recognition Survey:

After the building is completed and partially occupied, the Federal VA performs an extensive recognition survey. This survey or inspection takes one week to complete.

Buildings are given less than a 2% chance of passing the first time. Through the team efforts, the building passed the first time. If it had not passed, it would have meant the use of the building would have been delayed. This would have had a large fiscal impact on the veterans.

Dennis McFall, Deputy Director of the Utah Department of Veterans and Military Affairs, praised DFCM's expertise for its substantial undertaking of building two veterans homes at the same time (the Central Utah Veterans Home in Payson was the third facility to pass the recognition survey on its first time).

Architect: Naylor Wentworth Lund
General Contractor: Layton Construction

- Jim Russell,
Contruction Program Manager

Photos: Naylor Wentworth Lund Architects

Awards and Recognition

DFCM: Utah's Energy Champion of the Year!

AAE Award

DFCM was recognized as the Utah Energy Champion: Public Sector/State Agency for 2013 by the Association of Energy Engineers (AEE) for their efforts in energy conservation projects within state buildings over the past year.

AEE is a nonprofit professional society of over 16,000 members in 89 countries whose mission is "to promote the scientific and educational interests of those engaged in the energy industry and to foster action for Sustainable Development". Their goal is to highlight individuals and companies that exemplify these qualities.

AAE's prestigious award aims to recognize companies and individuals who have made outstanding contributions in promoting and implementing energy efficiency in the state of Utah. - ***Chris Atkins, ISF Energy Manager***

State Building Energy Efficiency Program: (l to r): John Burningham, Energy Development Director; Bianca Shama, Energy Improvement Program Director; Richard Young, Energy Program Specialist; and John Harrington, DFCM Energy Director.

Governor's Office Commends John Burningham's Leadership Effort in the Design Stage of Utah Valley University Classroom

Energy Development Director John Burningham was recognized by Governor Gary Herbert for his service to DFCM and his statewide collaborative efforts toward increased energy efficiency in each of the new state buildings. In his letter to John *(below)*, Governor Herbert expressed his appreciation for the valuable service provided to the State of Utah.

October 2013

"As Governor, it is my pleasure to commend you for your service in the Division of Facilities Construction and Management. I understand you worked diligently to ensure the new classroom building at Utah Valley University would operate at the highest possible energy efficiency. Thank you for your careful communication and close collaboration with all stakeholders to complete this project. Your devoted service to the State of Utah is greatly appreciated."

Best wishes for success in your future endeavors.

Sincerely,

Gary R. Herbert, Governor

Project Accomplishments:

John Burningham and DFCM Project Manager Kurt Baxter worked with the UVU staff, Method Studios, and CRSA Architects to present UVU President Dr. Matthew Holland a plan that would significantly increase energy efficiency in the building and will help ensure that UVU and the state will save millions in energy costs over the life of the building. The plan focused specifically in the design of a high performance building envelope as well as optimization of the building systems within the existing campus infrastructure. John has received considerable praise from the DFCM project managers for his consistent efforts.

Best 2013 Projects:

DFCM is recognized in the industry for excellence in construction. Engineering News-Record awarded the following as "Best 2013 Projects". ENR, a leading publication for construction industry professionals, has readership exceeding 90,000 for their print and website products.

ENR Best 2013 Projects:

Best Higher Education/ Research Project
Tooele Applied Technology College (Tooele)
Project Manager: Darrell Hunting

Award of Merit: Best Intermountain Health Care Project
Utah State Veterans Nursing Homes (Payson and Ivins)
Project Manager: Jim Russell

Award of Merit: Cultural / Worship
Utah Field House of Natural History State Park Museum: Curation Facility, (Vernal)
Project Manager: Darrell Hunting

Award of Merit: Higher Education / Research
University of Utah L.S. Skaggs Pharmacy Research Institute (Salt Lake City)
Project Manager: Rick James

Award of Merit: Higher Education / Research
University of Utah Spencer Fox Eccles Business Building (Salt Lake City)
Project Manager: Dave McKay

Award of Merit:
Residential / Hospitality
Weber State University Residential Life Complex, (Ogden)
Project Manager: Matthias Mueller

Other Notable Awards:

AGC 2013 Award of Excellence
DFCM Employee of the Year: Jim Russell, Construction Program Manager

DAS Executive Director Kim Hood and DFCM Director Josh Haines welcome Governor Gary Herbert during an agency visit in December 2013.

Important Links:

Visit our website **www.dfcm.utah.gov** *for the latest information and valuable resource tools.*

- **Current Projects:**

  Current Bid Projects can be found at:

  http://dfcmrfp.utah.gov/view_all.php

- **Standard Construction Documents & Forms:**

  For information on the bidding process, DFCM Forms and Reference Documents, go to the "Construction Management" tab of our website, select "Standard Construction Documents":

  http://dfcm.utah.gov/2012-09-10-20-25-38.html

- **5-Year Program**

  For the Utah State Building Board 5-Year Building Program For State Agencies and Institutions General Session 2014:

  http://dfcm.utah.gov/UtSBldgBoard/fiveyrprogram/fy2015_5yrplan.pdf

SAVE THE DATE!!

Construction Trades Meet & Greet

Join DFCM for this year's first Meet & Greet event with a diverse range of building construction professionals!

DFCM Management Team

This is an excellent opportunity to meet with construction industry experts in an informal setting and learn firsthand about their companies.

Gather information on current and future construction issues and exchange ideas at this unique networking event co-hosted by the Associated General Contractors.

Information will be presented by:

- **DFCM Management Team & Project Managers**
- **Contractors / Subcontractors**
- **Engineers / Designers**
- **State Agency Representatives**
- **Higher Education Institutions Representatives**
- **K-12 Facilities Staffs who participate in UFOMA**

CONSTRUCTION TRADES MEET & GREET

Thursday, May 15th

11:00 am - 2:00 pm

Associated General Contractors (AGC) Headquarters

2207 South 1070 West, Salt Lake City

State Office Building Room 4110
Salt Lake City, UT 84114

(801) 538-3017 phone
(801) 538-3267 fax

www.dfcm.utah.gov

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Cover Photo: Solar Panels at the Natural History Museum of Utah *(Rocío Briceño)*

Additional Photography This Issue:
Architectural Testing Inc. (ATI), Naylor Wentworth Lund Architects, VCBO Architects, Governor's Office

Contributors this issue:
Josh Haines, Bruce Whittington, Jim Russell, John Harrington, John Burningham, Chris Atkins, Bianca Shama, Colvin Engineering, Utah Department of Veterans and Military Affairs, Cee Cee Niederhauser, Gail Youngblood

Proofreading: **Dorothy Taylor**